ABSTRACT

INTERNATIONAL CONFERENCE ON BIODIVERSITY

SOCIETY FOR INDONESIAN BIODIVERSITY

Pontianak, 14-15 October 2017

THEME:

Tropical Peatland Biodiversity: Enhancing Conservation, Restoration, and Responsible Use Sustainable Development

SECRETARIAT ADDRESS

Sekretariat Masyarakat Biodiversitas Indonesia, Kantor Jurnal Biodiversitas, Jurusan Biologi, FMIPA UNS, Jl. Ir. Sutami 36A Surakarta 57126, Jawa Tengah, Indonesia. Tel./fax.: +62-271-663375. Email: biodiversitas@gmail.com. Website: biodiversitas.mipa.uns.ac.id/snmbi.html

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TIME SCHEDULE

International Conference on Biodiversity

Society for Indonesian Biodiversity (SIB)

Pontianak, Indonesia, 14-15 October 2017

TIME	ACTIVITIES	PERSON IN CHARGE	SITE
October 14, 2017			
08.00-08.30	Registration	Committee	Lobby
08.30-08.40	Indonesia Raya National Anthem	Committee	R1
08.40-08.50	Speech of the Committee	Chairman of the committee	R1
08.50-09.00	Opening speech	Rector of the Tanjungpura University, Pontianak **Prof. Dr. Thamrin Usman**	R1
09.00-09.20	Performing Arts (Choir and Dance)	Committee	R1
09.20-09.30	Photo Session and Coffee Break	Committee	R1, Lobby
09.30-11.00	Panel 1 **Prof. Dr. Mohammad Taherzadeh** **Prof. Dr. Bambang Hero Saharjo**	Moderator	R1
11.00-12.30	Panel 2 **Dr. Motoko Sugimoto Fujita** **Dr. Darlina Md. Naim**	Moderator	R1
12.30-13.30	Rest, pray, lunch	Committee	Lobby
13.30-14.30	Parallel presentation I		
	Group 1: -	Moderator	R1
	Group 2: -	Moderator	R2
	Group 3: -	Moderator	R3
	Group 4: -	Moderator	R4
	Group 5: -	Moderator	R5
14.30-14.45	Coffee break, pray	Committee	Lobby
14.45-15.45	Parallel presentation II		
	Group 6: -	Moderator	R1
	Group 7: -	Moderator	R2
	Group 8: -	Moderator	R3
	Group 9: -	Moderator	R4
	Group 10: -	Moderator	R5

15.45-16.45	Parallel presentation III		
	Group 11: -	Moderator	R1
	Group 12: -	Moderator	R2
	Group 13: -	Moderator	R3
	Group 14: -	Moderator	R4
	Group 15: -	Moderator	R5
16.45-17.00	Announcement of the Best Presenters	Chairman of the Board of Assessors	R1
	Closing speech and other explanations	Chairman of the committee	R1
17.00-19.00	Rest, pray	Committee	-
19.00-21.00	Galadinner	Committee	City Hall

October 15, 2017

07.00-07.30	Registration for field trip	Committee	Lobby
07.30-13.00	Field trip to the "Peatland Integrated Farming" in Rasau Jaya, Kuburaya District, West Kalimantan	Committee	-
13.00-15.00	Depart to Supadio Airport, Kuburaya District, West Kalimantan	Committee	-

Upcoming events:

1. November 4-5, 2017 – Medan, North Sumatra (International Conference on Biodiversity) http://biodiversitas.mipa.uns.ac.id/S/gen/schedules.html
2. December 8-10, 2017 – Bali (International Conference on Biodiversity) http://biodiversitas.mipa.uns.ac.id/S/gen/schedules.html

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International Conference on Biodiversity

Society for Indonesian Biodiversity (SIB)

Pontianak, Indonesia, 14-15 October 2017

Diversity of Ecosystem

CO-01

Carbon stock estimates at various land use system at sub watershed Sumber Brantas, East Java, Indonesia

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Natural forest has the highest C stock compared to agricultural land. Changes in the forest because of logging resulted in the loss of carbon. So, it is needed to get the C-stock changes caused by land cover changes. This research conducted at each land-use at sub watershed of Sumber Brantas, including Junrejo, Butu, and Bumiaji Subdistricts of Batu City, East Java, Indonesia. Estimation of land cover classes in the sub-watershed Sumber Brantas was conducted by determine the control points and check the validity of land cover that is made through satellite imagery. Carbon stock was measured in plot and landscape level, using RACSA. The results showed that mixed forest conversion into plantation forest (*Albizzia chinensis, Anthocephalus cadamba*) or crops caused C-stock losses above ground about ± 200 MgC ha^{-1}, while underground C losses were ± 40 Mg ha^{-1}. But, forest conversion into pine or teak plantation, will cause increase aboveground C stock about ± 100 MgC ha^{-1}. Tree biomass has the highest contribution on total C-stock (60% on average), while understorey and necromass contribute only about 2% and 5% of C-stock. Field measurement showed that plantation forest 2 has above ground C-stock as much as 320.86 Mg ha^{-1}, followed by mixed forest (235,95 Mg ha^{-1}), and plantation forest 1 (47,71 Mg ha^{-1}). Agricultural land and Shrubland has the lowest C-stock (51,57 Mg ha^{-1} and 12 Mg ha^{-1}) respectively. As the consequences of forest conversion into cropland (2008-2012), sub watershed Sumber Brantas (139447 hectares) has already loss the C-stock as much as 0.83 Mg C/ha/yrs or equivalent with 3.04 Mg CO_2 ha^{-1} th^{-1}.

Carbon stock, land use systems, Sumber Brantas

CO-02

Hydrological carbon cycles in degraded peatland forest ecosystems: role of interception and stream outflows

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Peatland hydrological condition is a prominent factor that explains its forest ecological condition, function and processes. It is demonstrated that temperature and hydrology directly control carbon mineralization in peatlands. Tropical peatland forests have critical ecosystem functions either by mitigating or intensifying flooding and/or by maintaining those hydrological functions including drainage and filtering water inputs and outputs which brought carbon in the flow. Any disturbance and environmental changes in the peatland could alter hydrological patterns on peatland water movement, and thus alter both carbon flow through water in this ecosystem, especially quantity of throughfall (water that falls through plant canopies), intercepted, and evaporated to the atmosphere from vegetation surfaces. A study had been held to investigate effects of a gradient of forest degradation levels which represented by canopy gaps: open, intermediate, and closed canopies which clarified by LAI reading; on the amount of interception. The amount was analyzed by utilizing integrated precipitation, throughfall and stemflow data collected in tipping buckets rain gauge and collectors in 2009-2011 and 2013-2015. Carbon losses on stream outflow were measured on 3 drainage ditches surround the peatland forest weekly in similar years of throughfall and stemflow assessment. The quantity of water input and output of water in different level of forest canopy cover determined the amount of carbon dynamic in hydrological system of degraded tropical peatland forests

Carbon dynamics, degraded tropical peatland, interception quantity, stream outflow

CO-03

Mixed formula of botanical insecticides for sustainable agriculture

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CO-12

Institutional development to build a successful local collective action in community forest management in Nusapati Village, West Kalimantan, Indonesia

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The study was aimed to build institution model of sustainable community forest management, through analysis of action arena, community attributes and community forest management rules in Nusapati Village, Sungai Pinyuh, Pontianak City, West Kalimantan, Indonesia. To achieve sustainable community forest management, recognition and incorporation of local institution in forest policy formulation are very important because it had great potential for collective action. To achieve a successful local collective action, the institution must be had the rules in use suitable with local community norms; the organization has the power to give reward and punishment as well as recognized and respected by society; specific management according to location; there is an instrument for controlling sustainable use. The finding of institutional model analysis shows that co-management model between government and local communities is more suitable, because it gives greater opportunities for indigenous rights recognition to community forest.

Collective action, community forest, co-management, institution, rules

CO-13

Biodiversity and community dynamics of periphyton in the formation of biofilms on carbon steel 37 surfaces in Saguling Hydro Power, West Java, Indonesia

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Periphyton referred to as benthic algae with reference to all the microflora associated with the substrate. Periphyton can cause corrosion of the metal either directly by producing free oxygen from photosynthesis process, or indirectly by providing various nutrient compounds and micro-environments for the bacteria that cause corrosion due to mucus produced at the time of colonizing the substrate. Biofilms formed on the surface of metals in natural waters are generally dominated by diatoms belonging to the periphyton group. Thus, the presence of periphyton, along with corrosion-causing bacteria, was also thought to accelerate the process of corrosion of metals in water. To analyze biodiversity and the dynamics of the periphyton community in the process of biofilm formation, this research was carried out by immersing carbon steel 37 (CS37) specimens in water flow in Saguling Hydro Power for four months and sampled periodically. On the surface of CS37, there were 20 types of periphyton that were dominated by Stanieria sp. and Phormidium sp. The existence of both types of periphyton can be due to the high dominance and abundance of both species in the aquatic environment around the observation site. The abundance of Stanieria sp. in both the Saguling hydroelectric waters and on CS37 surfaces can be caused by the abundance of available organic nutrients. In addition to microflora, microfauna was also found in the biofilms. The number of types of microfauna were 20 types and dominated by *Centropixys* sp., *Philodina* sp., and *Vorticella* sp., *Centropyxis* sp. was found in aquatic environments with eutrophic tropical status. Shannon diversity index of periphyton on CS37 ranged from 0.01 to 0.33 and showed a low species diversity, while the index of microfauna diversity ranged between 0.29 and 1.68 and showed low to medium species diversity. The results of FTIR analysis on biofilms showed the standard characteristics of a biofilm that indicated the presence of hydroxylic acid functional group as one of the cluster-forming carbohydrates and protein β-sheet which was a constituent group of the polypeptide. In the process of biofilm formation at Saguling hydro-power, sulfate reduced bacteria as anaerobic bacteria and the main bacterial group causing microbial corrosion was detected on CS37 surface on the second day. This indicated that the biofilms with the oxygen gradient in it have formed

Biofilm, carbon steel 37, community dynamics, periphyton, Saguling Hydro Power

CO-14

Analysis of hydrological function caused by land cover changes at Sumber Brantas Sub Watershed, East Java, Indonesia

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Conversion of forest into agricultural and residential land caused decline soil fertility, erosion, floods, droughts, and even global environmental change. Based on hydrological indicators, sub-watershed Sumber Brantas East Java, Indonesia has poor hydrological conditions (water system). Fluctuations in river flow caused the Brantas river basin becomes prone to flooding. Research methods are surveyed

through observation, literature study, and interviews either with officials of East Java Provincial Forestry Office or the community surround the research area. Data were analyzed by descriptive, qualitative and quantitative method. The results showed that the land cover change has a wide impact on the hydrological function in Brantassub watershed. One indicator that indicates hydrologic watershed health conditions, is the Relative Buffering Indicator (RBI), Buffering Peak Event (BPE) and the coefficient of river regime (KRS).Hydrological function decline can be seen from the value of RBI and BPE< 1, and KRS for 56.9 shows that the condition of the watershed in a bad state.

Hydrological function, sub watershed

CP-01

Impacts of land use systems on soil characteristics and microbial populations in Lore Lindu National Park, Central Sulawesi, Indonesia

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The soil characteristics are important data regarding on our efforts to conserve biodiversity and promote ecosystem sustainability. These studies were aimed to determine the impacts of land use types on soil characteristics and microbial populations in Lore Lindu National Park, Central Sulawesi, Indonesia. The composite soil samples were collected from two depth levels; 0-30 cm and 30-60cm at three different land use types, i.e., primary forest, secondary forest and grassland. We have also collected the plant samples from both land use types. Hence, the soil samples were analyzed at Soil Science Laboratory, Faculty of Agriculture, Tadulako University, Palu, Indonesia and plant species identification was done at Herbarium of Celebence, Tadulako University, Palu. The results showed that primary forest land use option is the best land use option for promoting a better soil characteristics development and soil microbial population enhancement. Generally, soil physical and chemical characteristics and microbial populations were better in primary forest than secondary forest and grassland in two depth levels of all land use types. Furthermore, bacterial populations are also higher than fungal populations in two depth levels of all land use types. Higher number of plant species in primary forest is an important factor, which directly influences soil characteristic and microbial populations in this land use type.

Land use types, Lore Lindu National Park, microbial, population, soil characteristics

CP-02

The bird communities that are traded based on the use of the forest canopy layer in Way Canguk, Bukit Barisan Nasional Park, Indonesia

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Bird trade is a factor affecting the lives of avifauna in the form of a strong threat to the population and its habitat in nature. The birds caught and trafficked are selected by hunters, not only by the appearance of birds but in the forest layer that the birds use. The aim of this research is to know the community of birds that are traded based on forest stratification in Way Canguk, Bukit Barisan Selatan National Park, administratively in Pemerihan Village, Bengkunat Belimbing Sub-district, West Lampung District, Lampung Province, Indonesia. The method used is Variable Circular Plot, and vegetation stratification based on tree height estimation. The results showed that the species of birds traded were found in the middle stratum of vegetation (15-30 m), reaching 31%. Poachers aiming for specific birds (commonly hunted birds) therefore they adjust their methods to reach the stratum height, e.g. raising net height. This condition may threatened bird species using middle stratum.

Birds community, Bukit Barisan Selatan National Park, burned forest, forest stratification, traded bird

CP-03

Relationship between decrease in water volume and compression of peat at different maturity levels in peat area of berengbengkel, Central Kalimantan, Indonesia

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Pontianak, Indonesia, October 14-15, 2017

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Awarded with thanks to:

Raasyda Priyadarshini

In recognition of his/her significant contribution as:

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Pontianak, Indonesia, 15th October 2017

Prof. Dr. Sukarno, M.Sc., Ph.D.

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